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Conserved charge fluctuations and the QCD phase diagram

Tuesday, 18 February 2014 10:00 (30 minutes)

We will review recent progress on the calculation of conserved charge fluctuations with highly improved staggered quarks (HISQ). In particular we will focus on higher order cumulants of net baryon number, net electric charge and net strangeness fluctuations. We will discuss how these quantities approach the hadron resonance gas model at low temperatures and analyze to what extent they show sensitivity to universal scaling behavior, i.e. we estimate the relative strength of contributions from the regular and singular part of the free energy. Based on this analysis we discuss consequences for the convergence radius of the Taylor expansion of the pressure and possible experimental observables of the QCD critical point.

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